ELECTROPHYSIOLOGICAL PROFILE OF MYOCARDIUM IN OBSTRUCTIVE SLEEP APNEA

ABSTRACT

Introduction:

Obstructive sleep apnea, although a relatively common medical condition is under diagnosed in 85% of cases. OSA is characterised by intermittent episodes of partial or complete obstruction of upper airway during sleep and is typically associated with snoring and daytime sleepiness. Obstructive sleep apnea has been linked to number of cardiovascular diseases. Over the last decade association between OSA and cardiac arrhythmias has garnered attention from different clinical specialities. Although cardiac arrhythmias are presumed to be a common problem in patients with OSA, true prevalence and clinical relevance of cardiac arrhythmias remain largely unknown. The aim of our study was to determine the association between OSA and cardiac arrhythmias and also to elucidate various risk factors and severity of OSA and its influence on cardiovascular morbidity.

Materials and Methods: This was a tertiary care hospital based descriptive longitudinal study conducted between April 2018 to September 2018 at government kilpauk medical college and hospital, Chennai. Patients with known coronary artery disease, h/o previous cardiac surgeries, thyroid disorders, connective tissue disorders and on drugs that mask arrhythmias were excluded from the study. Consequently patients who presented to OPD with history of snoring and daytime sleepiness were screened with STOP-BANG questionnaire .96 patients whose scores were more than 2 were subjected to laboratory investigations, ECG, Echocardiogarphy, Overnight polysomnography and 24 hours holter monitoring..

RESULTS :

From March 2018 to September 2018 a total of 96 patients suspected to have OSA were enrolled in the study. 84% of the study population were males and 16%

were females. Hypertension accounted for 59% (n=57) of the study population. whereas only 32% of the study population were diabetics. Body mass index was used in our study to classify obesity among the study population; 7% were in the normal weight range; 9% (n=9) were overweight; 30% came under class I obesity whereas 54% came under class II obesity. AHI (Apnea- Hypopnea) index was used to classify severity of OSA. 20% of the study population had mild OSA; 32% had moderate OSA and 48% had severe OSA. 24 hours holter monitoring was done to detect cardiac arrhythmias. 64% of the study population had some type of cardiac arrhythmia.

The frequency distribution of different types of cardiac arrhythmias were as follows: 26% had Ventricular premature contractions; 11.5% had sinus bradycardia; 10% had frequent premature atrial contractions; 9% had sinus arrest (>2.5 sec);4% had Paroxysomal AF; 3% had II degree AV Block; Holter recording were negative for any arrhythmia in 35% of study population. There was strong correlation between BMI and severity of AHI ($p<0.0005$). There was also strong correlation between severity of OSA and occurrence of arrhythmia.

Conclusion :

OSA has been strongly associated with obesity. Our study has clearly demonstrated the fact that, greater the body mass index (BMI) the more severe was the obstructive sleep apnea. OSA has also been linked to number of cardiovascular diseases including hypertension, coronary artery disease, congestive cardiac failure, cardiac arrhythmias and sudden cardiac death. Our study clearly demonstrates the association between cardiac arrhythmias and obstructive sleep apnea.

Subsequently we also found that as the severity of OSA increases, the occurrence of arrhythmias also increases. Future studies are warranted to analyze the prognostic significance of these arrhythmias and whether treatment of underlying Obstructive sleep apnea has an impact on these arrhythmias.

Key words : Obstructive sleep apnea, cardiac arrhythmias, obesity.